APRIL 1961

EOF electricity on the farm

SOUTHEAST EDITION

"I don't mind doing dishes for Mommy since we put in our new dishwasher" says daughter of the P. B. Brooks, Castle Hayne, N. C.

NOW! A FREEZER THAT PUTS 40% MORE FOOD UP FRONT

MODEL V-900

New FOODARAMA FREEZER by Kelvinator

Now . . . no more digging through endless packages for the frozen foods you want!

With two compartments side-by-side, everything's easy to find in this new Foodarama Freezer. Just look at the tremendous storage for cans and packages in the doors alone! And with its giant 18.2 cu. ft. capacity, this Kelvinator freezer stores 637 pounds of frozen foods in a cabinet only 41″ wide, 63″ high and 25″ deep!

You get all the conveniences, too . . . full-width fast-freeze shelves, interior floodlights, temperature control, roll-out basket, door locks, and safety signal light . . . plus comprehensive warranty protection.

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SOUTHEAST

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electricity on the farm

APRIL 1961
VOL. 34, NO. 3

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About the Tobacco Harvest

An agricultural research project may go along quietly and relatively unnoticed for several years, then pop into the headlines. A good example is the work done by N. C. State College and USDA to bring bulk curing and handling to the flue-cured tobacco harvest. One company now manufactures special curing barns that, on the basis of tests conducted last summer, appear to have a lot of advantages (page 4).

But the big problem for the grower may be capital. He must decide if his labor problem is serious enough and the wage he pays high enough to justify the investment. Last winter, at the Tobacco Workers' Conference at Clemson College, it was pointed out that binder tobacco acreage in Connecticut and Massachusetts has been shrinking fast. Cost of hand labor for harvesting and curing has made production unprofitable. This could hit the flue-cured belt, too.

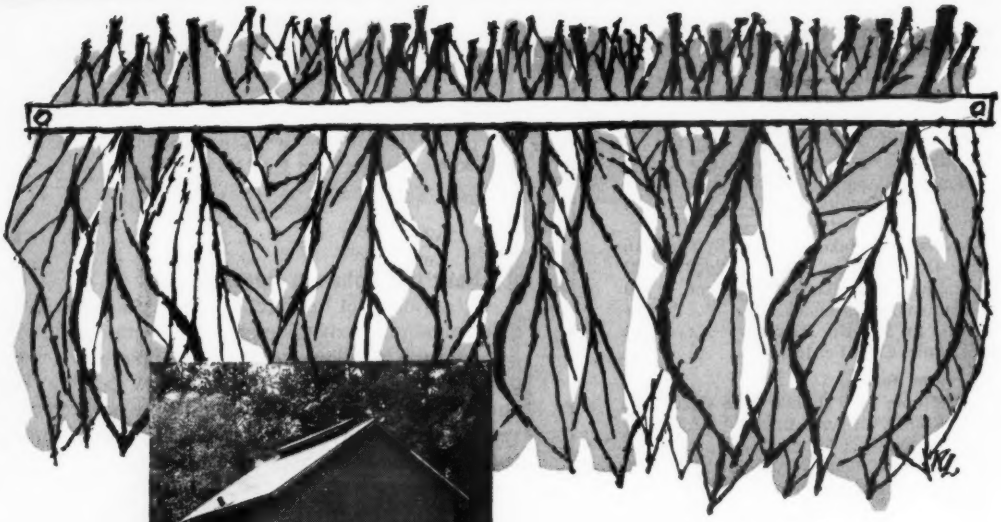
This much is certain. Tobacco growers will be watching the new system, hoping to adapt the labor-saver to their own operations. ALBERT MORRIS

Frozen Foods Enrich Today's Living

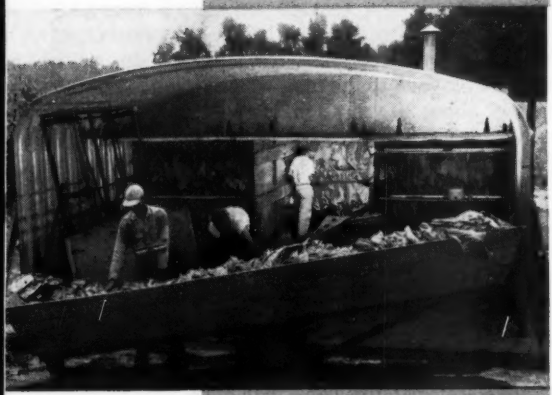
How many times a week do you enjoy a nice, juicy steak or a sundae topped with bright red strawberries from your home freezer? Next time you do, say a silent "thank you" to the man who developed "Quick freezing" about 30 years ago. He was Clarence Birdseye, an inventive Yankee from Gloucester, Mass.

People at first hailed this new process as merely a way to enjoy "strawberries in January." However, the emphasis soon shifted to the far more significant fact that quick freezing would enable homemakers to serve garden-fresh fruits, vegetables and other seasonal foods year-round at their peak of nutritional value, flavor and quality. Meats could be kept many weeks without loss of quality.

Today's homemaker takes frozen food as a matter of course. Refrigerators come with built-in frozen food compartments. Most farm folk use separate home freezers to process garden vegetables, fruits and meat supplies. Many young farm brides know nothing about the tedious home canning previously needed to preserve foods. Freezer-stored food is next best thing to the fresh product itself. HUGH J. HANSEN



Conventional tobacco barn, a familiar sight on so many southern farms, now can be replaced . . .



. . . With a bulk curing barn like this one that is far smaller, offers important labor-saving advantages. Electronic controls for temperature, moisture and air-flow allow owner to have the curing conditions he desires.

Handle and Cure Tobacco in Bulk

with system developed by N. C. State College and USDA and farm tested last summer...

It appears certain that some tobacco growers will take the giant step to bulk handling and curing of at least part of their crop this year. They will use a commercially manufactured curing barn and a system that is the outgrowth of nine years of research at North Carolina State College. Such a barn was tested last summer on the farm of E. W. and Harry S. Stone at Lumberton, N. C. Both the farmers and the scientists were pleased with the outcome. Dr. F. J. Hassler says bulk curing should reduce by 60% the labor requirements from priming to marketing.

There are other advantages, too. Ability to control air temperatures and moisture results in a more uniform cure. The yellow color is more stable. There is less tendency to sponge. The fire hazard is eliminated, a very important factor when you consider that an estimated 1500 tobacco barns were destroyed by fire in North Carolina last year usually

During farm testing of the new barn last summer, leaves were removed from trailer and stacked into form . . . . . Then clamped into rack which holds about 130 lbs. of green tobacco . . . . . And carried into curing chamber. Heated air is blown in through tapered duct.

W. H. Johnson, member of the research team, inspects tobacco curing during first farm tests.

while barns were filled with tobacco.

The commercial unit will have capacity equal to a conventional 1000-stick barn, is said to be capable of handling the crop from 4 to 5 acres, and sells for near $4500. Growers will have to consider their individual situations to determine whether the labor-saving feature and other advantages of bulk curing will give them a fair return.

The barn uses an oil-fired furnace. A 3 hp electric fan forces heated air into ducts and up through the tobacco. A system of dampers makes it possible to increase efficiency by recirculating all or part of the air. An indication of the temperature control made possible by the system is the fact that tests showed air in the ducts to be within 3° of the thermostat setting.

Bulk curing is expected to catch on all over the flue-cured tobacco belt for exactly the same reason that the Stone brothers were anxious to try it. A steadily rising minimum wage and the availability of jobs in town have made dependable farm labor both expensive and hard to get.

Mechanization Badly Needed

"We work tobacco not because of any love for it, but to make a living," declares E. W. Stone. "Mechanization of the harvest was something we had to have. When we heard about the research on bulk curing we were ready to try it."

Judging by the numbers who have driven long distances to see the barn and talk to the scientists at the college, a lot of other farmers are equally anxious to mechanize their tobacco harvest.

Last summer, the Stones cured 9922 lbs. in the bulk barn, selling it for an average of $65.40 a hundred. They cured 52,488 lbs. in their conventional barns, and sold this for an average of $63.97. In fairness, E. W. points out that the bulk-cured leaf was sold earlier on a lower market. And he admits that he did not select the best part of his crop for the experiment.

Eight Test Runs

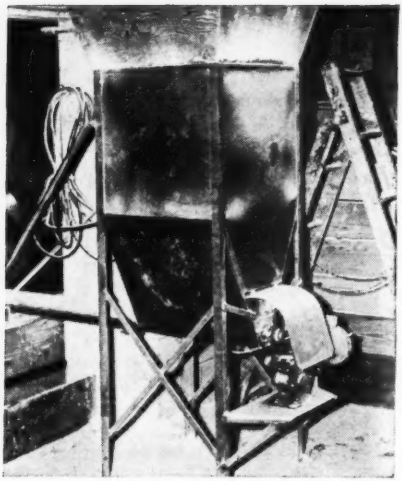
Eight different harvests were cured in the bulk barn. The first runs were intentionally light. The final loading approached 2000 lbs. of cured tobacco. There was no scalding and sweating, as in conventional barns, say the Stones. They had no trouble yellowing the leaf at 105°.

With respect to labor, they used 6 men in the field and 2 at the barn. This is the opposite of the usual harvest arrangement, where they figure on 8 primers in the field, 5 or 6 stringers at the barn and 2 handers for each stringer. In other words, the labor force was reduced from 18 to 8.

Men at the barn placed the leaves into forms for clamping into racks that hold roughly 130 lbs. of green tobacco. Once filled, a rack is carried into the curing chamber. There are only two levels of racks, both easily reached from the floor. The building itself is only 8½ feet high. Bulk curing requires about ⅙ as much space as conventional methods. The Stones found their fuel cost per pound of tobacco was less. No sticks are needed and there is no twine to buy.

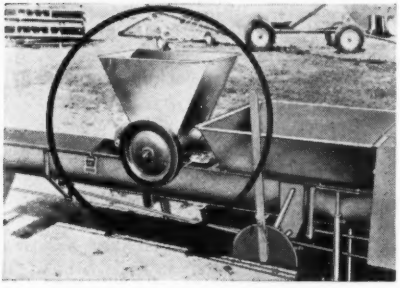
To fill the bulk barn required about 6 hours. The Stones figured on curing in 5 to 5½ days and barning again on the sixth day.

Dr. Hassler, head of the agricultural engineering department at North Carolina State is the leader of research team which developed the bulk-curing technique. Others on the team are agricultural engineers W. H. Johnson, W. H. Henson, Jr., and Rupert W. Watkins. The Agricultural Research Service of USDA is also cooperating. □ □

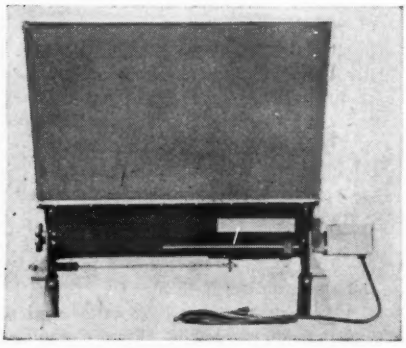


Large hopper on this supplement meter-feeder holds 500 lbs., feeds at rates from 1 to 100 lbs. per minute. Powered by ⅓ hp variable-speed electric motor coupled directly to reduction gearbox and auger.

Make forage feeding totally automatic with Concentrate Feed



Straddling the hopper end of an auger bunk feeder, this unit has 100-lb. bin, can be adjusted to empty in from two to 30 minutes. Uses direct friction drive from ¼ hp motor. Rate of flow is adjusted by moving simple slide gate under hopper bin. Unit incorporates a "bag buster" device in hopper.



Simple slide adjustment on underside of auger varies discharge rate of this unit from 3 to 22 lbs. per minute. Hopper holds 120 lbs. of concentrate. Auger is powered by fractional hp built-in gearmotor.

Mechanical feed bunks have become widely accepted and used by livestock raisers over the past ten years. These units did much to reduce the hours of farm chore labor needed to care for livestock.

Even with mechanical bunks, however, there was still some time-consuming hand work involved in adding concentrated type protein supplements such as powder, meal, pellets, or shelled corn to the silage.

Previously, it has been difficult to add the right proportions of these supplements to the silage as it was distributed directly to cattle via silo unloader and mechanical bunk feeder. There were the physical problems of lifting and tearing open large numbers of sacks, incomplete mixing of forage and supplement, spillage and waste. Also, the farmer could never be sure that the amount of supplement added was correct. A little too much and the effect would be wasted—too little and the cattle would not get all the benefits of the protein.

The recent development of various "concentrate feed meter" devices now makes it possible to do this job mechanically. Some half dozen makes of these units are available commercially from various manufacturers.

The new concentrate feed meters in general consist of a bin (100-500 lb. capacity, depending upon make) and the metering device to add feed to the silage as it is being carried to the bunk feeder.

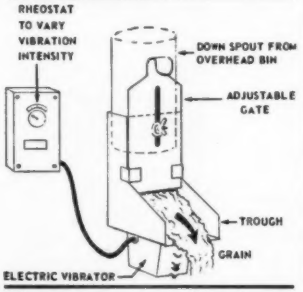
Most of them operate on a volumetric basis—the amount of concentrate metered is measured by volume rather than by weight. This volume rate of delivery is adjustable, ranging from a minimum of 1 or 2 pounds per minute to maximums of over 200 pounds per minute. Such adjustments are made in various ways. Some change the speed of the auger or motor; some use a slide door adjustment on the opening from the hopper; some fill measured fluted wheels or compartments which are then dumped on a timed cycle; and some use an electrically-vibrated feed apron that shakes out feed in proportion to the vibration frequency at

Meters

which it is operated and the gate size opening to the feed apron.

In general, the volume accuracy of the units appears to be within 5% on the type of protein concentrates generally used by livestock producers. Accuracy to as close as 2% can be obtained on some easy-to-handle granular materials. Delivery rate or volume of the unit should be checked in relation to the silage delivery rate and adjusted to give the desired ratio of silage and concentrates wanted for a particular feed lot.

It seems that a protein supplement meter should be an essential part of any totally automatic cattle-feeding operation. It assures the producer that the animals are getting exactly the ration he wishes—automatically. □□



Vibrator-type meter utilizes rheostat to vary rate of feed flow from 2 to 30 lbs./min. Adjustable gate also helps control rate of flow. Limit of error is 5%.

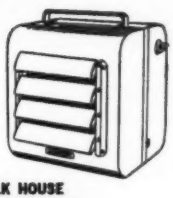
Electromode

SAFE ELECTRIC HEAT • ALL AROUND THE FARM •

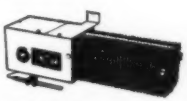
Means More COMFORT
CONVENIENCE, EFFICIENCY, PROFIT

Today, electric heat does dozens of jobs all around the farm from protecting water pipes from freezing to providing comfortable working conditions in various farm buildings as well as in exposed areas. Take the Milk House Heater, for example, its fan-circulated heat preserves the structure by keeping it dry, prevents ice forming on the floor, and aids ventilation . . . all plus benefits in addition to its primary use of ensuring running water and comfort while washing milk utensils. By employing the advantages of electric heat, many farm operators find they can keep production up, increase efficiency, and thus, add to their overall profits, **all around the farm.**

Also more and more rural families are discovering the special kind of controlled warmth electricity provides throughout the home. Temperature of each room is controlled by separate thermostat. No maintenance problems. It's clean, flameless, safe and efficient.



MILK HOUSE
STORAGE BINS
BROODING PENS



PUMP HOUSE
OTHER REMOTE LOCATIONS

MILKING PARLOR
TOOL SHED
FARM SHOP

FOR HOME BASEBOARD HEAT

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DEPT. EF-61 ROCHESTER 3, NEW YORK

Here's What Your Neighbors Think of Electric Heat . . .

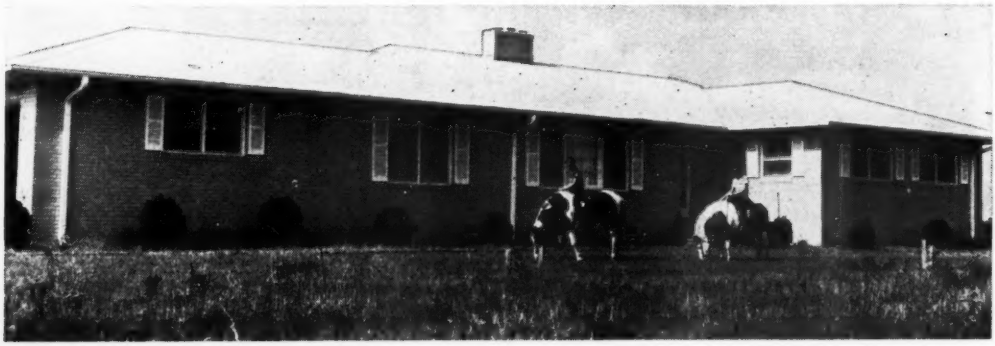
E. W. Frazier, McCool, Mississippi, *switched to electric heating in 1958. He installed wall-insert heating units between studs by simply going into walls from insides of closets. This way he didn't damage exterior wall surfaces. Now, the only visible clue to electric heat is the air outlet near the floor, air inlet near the ceiling, and thermostat on the wall of each room.*

Wall-insert type heating units *give the C. O. Renicks, of Jackson, Mississippi, individual room control. "We can have every area of the house heated just the way we prefer it," Mrs. Renick says. She credits electric heat with making her household chores, especially cleaning, much easier.*

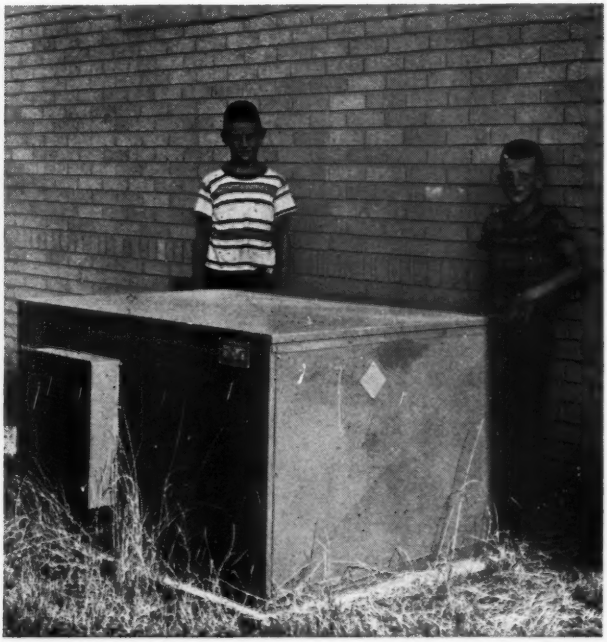
Baseboard electric heaters *keep a historic, 165-year-old Virginia home a lot warmer than the fireplaces that used to glow in its high-ceilinged rooms. "It's wonderful . . ." says Mrs. Erich Sieverdes, of Forest, Virginia, ". . . so convenient, quick, clean, comfortable and safe. And there's no work connected with it. Besides, the baseboard heaters take up little space and don't interfere at all with furniture placement."*

Please turn page . . .

Here's what your neighbors think of electric heat . . .



The Ralph Sutherlands, of Anderson, South Carolina, *discovered for the first time what real comfort is when they moved into their new, heat-pump-equipped home. The 5 hp unit keeps their 2350 sq. ft. of living area at an even 75° all year-round, heating in winter and cooling in summer. Completely automatic, the heat pump also filters out dust, dirt and pollen from the air and conditions its humidity. "Unless I go outside," says Mrs. Sutherland, "I have no idea what outdoor temperatures are—it's always the same in here."*

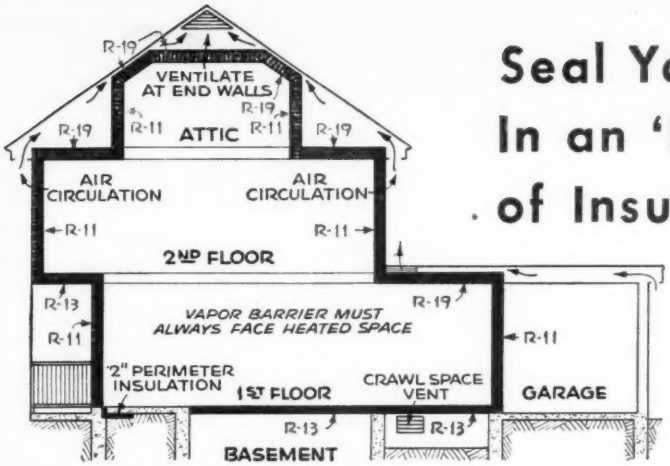


The W. T. Reeves saved 50%

on the initial cost of a heating system for their new brick home near Canton, North Carolina. And, in radiant-ceiling-cable-type heat, they figure they got a superior heating system to boot. The only visible evidences of the system are the wall thermostats in each room, giving individual-room heat control. The warmth "feels like sunshine," the Reeves exclaim.

The E. W. Wisecarvers'

Forest, Virginia home holds a mystery. No one knows where the heat's coming from. In fact, visitors don't even notice the radiant heat—coming from cables buried in the ceiling—at all, it's so even. Initial installation cost in the new home was low—a few dollars less than a fuel-burning furnace system would have cost. Mrs. Wisecarver likes the freedom that her invisible heating system allows in furniture placement, decoration and cleaning chores. And there's no worry about fuel, either.



Seal Your Home In an 'ENVELOPE' of Insulation

THE fact that insulation is necessary for efficient, economical electric heat is widely accepted today. But knowing you need insulation is not enough. The discerning home owner wants the answers to such questions as why insulation is needed; how much insulation to put in?; where to put it?; how to do it?

Why do you need insulation for electric heat? The answer is simple: The cost of insulation will be saved many times over in lower heating bills. By reducing heat loss, insulation also makes possible smaller heating equipment.

In addition, you get the bonus of year-round comfort. Insulation keeps the heat where you want it—in the house during winter and outside in summer. Without insulation, walls will be cold in winter no matter how much heat you pour into a room. Cold walls will make anyone sitting next to them uncomfortable. And when warm air comes in contact with the cold walls, it drops to the floor where it displaces warmer air, thus setting in motion a continuous, uncomfortable draft.

In summer, insulation keeps a house cooler. It is a first step toward air conditioning. When air conditioning is added, the insulation makes it possible for smaller units to keep the house cooler, at lower cost.

Who should insulate your home? With a little know-how, and the aid of a sharp knife and a stapling machine, you can install it yourself. But for the inaccessible areas in an existing house (such as the wall cavities), you'll need to hire an insulation contractor to blow it in pneumatically.

When should you install insulation? After the house is completely closed in. But not until all piping, ductwork, outlet boxes and electrical receptacles are in place. Otherwise, you'll have to do the job twice.

Where should you install insulation? The ceiling, all outside walls, and the floor over unheated spaces should be insulated. Think of the insulation as an envelope enclosing the area to be heated.

What should you use? Mineral wool manufacturers now mark their products with "R" numbers instead of inches, to show the Resistance to heat flow that will be provided when the insulation is installed. To comply with the All Weather Comfort Standard for electrically heated and air-conditioned homes, you'll need R-19 batts or blankets for the ceiling, R-11 for the walls, and R-13 for the floors. There is also an R-24 mineral wool batt for use in ceilings where additional insulation is desired.

You may use pouring wool in an open attic floor, but the manufacturer's instructions as to depth, density, and coverage must be carefully followed to achieve the required insulating value.

For the walls in an existing house, you'll have to use blowing wool. Since special equipment, as well as a thorough knowledge of building construction, is required to install blowing wool, you'll have to have it done by an insulation contractor.

How should it be installed? In general terms, the insulation must be complete—the "envelope" must not have any holes in it. If a vapor barrier is used, it must be on the warm-in-winter side of the insulation, and must be continuous. The vapor barrier keeps moisture generated inside the house by cooking, washing, clothes drying or bathing from penetrating walls, ceilings and floors. Batts and blankets are available with a vapor barrier attached. Where blowing wool is used in existing walls, special moisture-proof paints will provide a satisfactory barrier. Acceptable are aluminum paint with spar varnish as a vehicle, emulsion paints, primer sealer, plus enamel and rubber resin lacquer types.

Ventilation must be provided in the attic and crawl space to carry off excess moisture. □□

Two Pumps and a Spring Replace One Poor Well

B. H. Morris literally poured $2000 into a deep well on his Shelby County, Alabama farm. He was trying to develop an adequate water supply for his residence, 3000 layers and a small hog enterprise. When costs for the well reached the $2000 mark, he was getting barely enough water for the residence—no more.

At this point, he began to explore the possibility of pumping water for the layers and hogs from a spring 2200 feet away. He asked the rural service engineer of his power supplier to help him develop a system for pumping the water.

The system, installed at a cost of about $500, is providing plenty of water for farmstead needs, including fire protection. Two pumps are used. The first is a ⅓ hp piston-type, installed 1400 feet from the spring with a 1¼-inch plastic pipe as the suction line. A 1-inch plastic pipe extends the remaining 800 feet to a ⅓ hp jet pump. No. 10 underground electrical cable is buried beside this pipe to provide electricity to the first pump.

Only one pressure tank, located at the jet pump, is used. Similarly, the pressure switch on the jet pump controls operation of both pumps.—SAM BOOKER

Jet pump near the farmstead provides final pressure boost to water stream coming from piston pump out in the field. One-inch plastic pipe extends from here to farmstead. Pressure tank and switch are located at this pump.

Piston pump draws water from spring. It is located 1400 feet from spring; draws water through 1¼-in. plastic pipe.

YOUR customer, Mrs. Homemaker, is still boss when it comes to deciding whether or not she wants the product you have produced. Through education and experience, she has become very selective in buying eggs. She wants quality. This means a light-colored and high standing yolk, a firm albumen (white), a mild taste, and no impurities (blood clots, etc.)

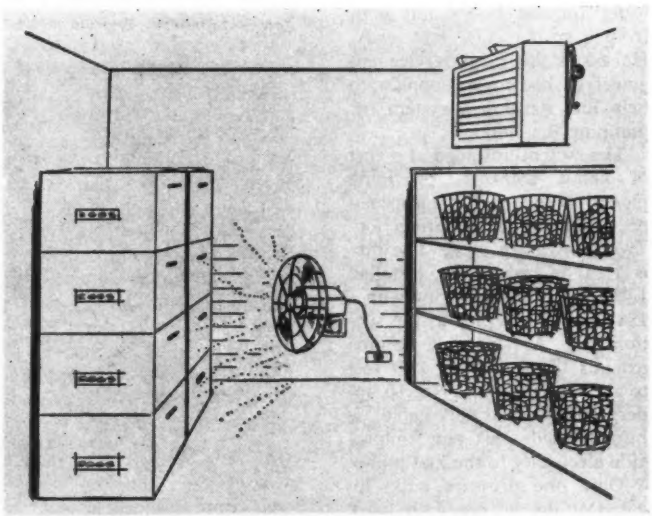
Today, with improved breeds, controlled housing, uniform feed mixes, and general good management, the hen lays a high grade finished food product — a quality egg just like Mrs. Homemaker wishes to buy. If proper steps are taken, it is possible for every poultryman to preserve this quality egg as the hen laid it. Here are some practices that should be followed:

- *gather eggs often, at least four times daily*
- *handle eggs carefully and keep them clean*
- *candle all eggs*
- *clean every egg*
- *cool eggs as quickly as possible*
- *maintain egg room at 55° to 65° F.*
- *maintain egg room at 75% to 85% relative humidity*
- *cool egg cartons and boxes*
- *keep eggs cool until delivered*
- *encourage customers to refrigerate eggs*

The egg room should be designed to handle your particular size flock. Usually it is built in a corner near the egg processing area. It should be constructed of mold-proof materials such as asbestos board or concrete block. Adequate insulation is very important to help maintain proper temperatures. Insulation should be of a type such as plastic foam that will not absorb moisture. If regular insulations are used, be sure they are well protected with vapor barriers because of the high humidities maintained inside the egg room. Use a cooling unit designed specifically for egg cooling rooms.

The following chart can be used as a guide for egg room design.

Maximum Cases Stored	Cooling Baskets	Floor Area Sq.Ft.	Refrigeration Capacity
25	10	25-50	¼-⅓ hp
50	20	45-80	¼-⅓ hp
75	30	60-100	⅓-½ hp
100	42	75-125	⅓-½ hp
150	64	110-180	½-¾ hp
200	84	150-240	¾-1 hp



Egg cooling rooms must be well insulated to maintain 55-65° F. and a relative humidity of 75-85% supplied by cooler unit in wall or ceiling. Circulating fan hastens cooling of eggs in baskets or cases.

Research Notes

By J. P. SCHAENZER

The average hen 30 years ago laid 121 eggs per year. Today she lays 206, and the best flocks average 250 or more eggs per hen per year.—USDA, C. W. KNOX

An experimental, unattended, mechanically-operated silage feeder enables the cow to control and select the time and volume of feed whenever she wants to eat.—PENNA. STATE UNIV., A. J. SWEARINGEN

Detergents not rinsed out of clothes will build up in the fabric, giving it a harsh feeling, making it irritating to the skin, and turning it yellow when dried in an automatic dryer.—UNIV. OF MINNESOTA

Two to 3-week-old calves can be dehorned simply, efficiently, economically and humanely in from 10 to 15 seconds with an electric dehorner. — UNIV. OF MONTANA, N. C. QUESENBERRY

Production of hammer mills can be increased 15-25% with improved granulation of the feed. Hammers 1/16 in. thick are used instead of 1/8-in. hammers.—KANSAS STATE UNIV., R. J. BAKER

Broodiness in commercial turkey flocks can be broken in 24 hours by placing the hens in brooding pens having a 150-watt light bulb, hung 4 ft. above the floor, for each 16 sq. ft. of floor area.—UNIV. OF WISCONSIN, F. L. CHERMS, JR. AND R. W. HALLER

Processing broilers between midnight and 9 a.m. instead of the usual 6 a.m. to 3 p.m. period cuts weight loss 1/3 and reduces downgrading. — NORTH CAROLINA, W. R. HENRY AND ROBERT RAUNIKER

Consumption of edible oils used in mayonnaise and salad dressings has increased from 1.4 lbs. per person in 1939 to 3.3 lbs. in 1959.—USDA, AMS, G. W. KROMER

Eight out of every 10 eggs are laid before noon, and half of these before 8 a.m.—MICHIGAN STATE UNIV.

Feed wastage with a deep pan watering system can amount to 3-4 lbs. per bird per year when using an all-mash ration. Feed loss was cut one-half when a shallow trough with water 1/2-in. deep was used.—NEW JERSEY, H. S. WEISS

A 60° temperature appears to be the best for gains and feed efficiency in pigs from 50 lbs. to market weight.—IOWA STATE UNIV., D. W. MANGOLD

The 39,000 KWHrs used during a year in a new 10,000-bird laying house were distributed as follows: 2 feeders—2,555 KWHrs; 2 egg gatherers—1,725; 3 ventilating fans—14,965; egg washer—2,920; water pump—240; droppings cleaner—365. Lighting and other uses accounted for the remainder. — CORNELL UNIV., TURNER, SIMONS, and ODDEN

Concentrated frozen canned milk that can be stored up to 3½ months at 10° has been developed. When used, 2 cans of water are added to the thawed concentrate.—UNIV. OF WISCONSIN, D. R. BRAATZ AND W. C. WINDER

Crimson clover seed can be conveyed 60 ft. through a 1½-in. pipe without damage at rates up to 1500 lbs. per hour using a 3 hp motor.—OREGON STATE COLL., JESSE E. HARMOND

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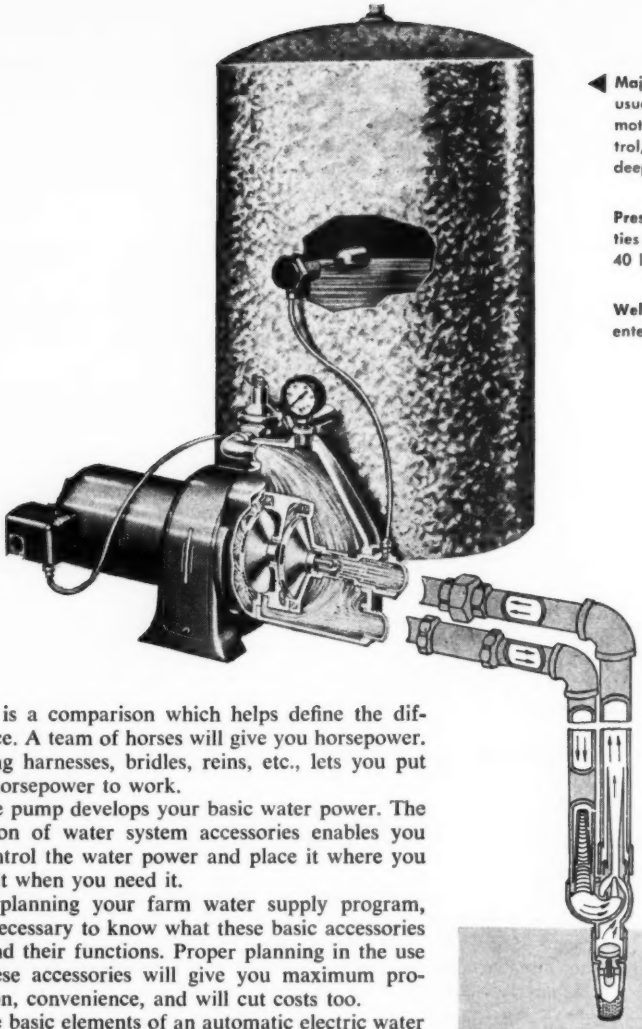
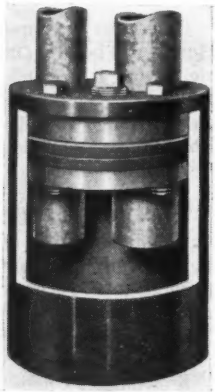


◀ **Major components** of water system, usually right at the well, are the pump, motor, pressure tank, air volume control, pressure switch. This pump is a deep-well jet unit.

Pressure tank diagram shows capacities of various sizes between 20 and 40 lbs. pressure. ▶

Well seals prevent surface water from entering well and contaminating it. ▼



ACCESSORIES

QUESTION: What is the difference between a pump and a water system?

Here is a comparison which helps define the difference. A team of horses will give you horsepower. Adding harnesses, bridles, reins, etc., lets you put that horsepower to work.

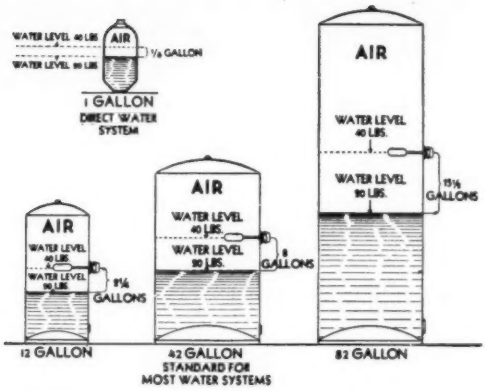
The pump develops your basic water power. The addition of water system accessories enables you to control the water power and place it where you need it when you need it.

In planning your farm water supply program, it is necessary to know what these basic accessories are and their functions. Proper planning in the use of these accessories will give you maximum production, convenience, and will cut costs too.

The basic elements of an automatic electric water system are a pump, electric motor, pressure tank, pressure switch, and air volume control.

Various types of pumps have been discussed in previous articles. The specific types of accessories you use will depend to some extent on the type of pump. But each type of pump needs a combination of these accessories described below to perform as a water system.

Electric motor—In almost all cases, the motor is considered part of the pump itself. Jet and submersible pumps, for example, use motors especially designed for those pumps, and the pump and motor are sold as a combination unit. Reciprocating and other types of pumps which use a belt drive may be



sold with or without a motor. A motor purchased separately, however, should always meet the pump manufacturer's specifications. No matter what type of motor is used, it is important that available current and voltage correspond to motor specifications. If pump and motor are located 50 ft. or more from the switch box, make sure the wire size is large enough to prevent a low voltage condition.

Pressure Tank—Here is the accessory that develops the pressure needed to move water to where it is needed. The pressure tank holds water and air. The **pressure switch** and the **air volume control** are two other accessories which make the pressure tank perform as an automatic unit.

Here is a simplified description of how a pressure tank works. The pump discharges water into the tank. As the tank begins to fill, the air in the tank compresses, building up pressure. When the tank is about two-thirds full of water, the pressure switch automatically stops the pump. When a faucet is opened, water comes out "under pressure" because it is being driven by the pressure of the compressed air in the tank. Enough pressure is provided to overcome the friction of the water moving through pipes. When the tank drains to about one-third full, the pressure switch automatically kicks on the pump, which again delivers water to the tank. The **air volume control** automatically regulates the amount of air in the tank to maintain proper balance between air and water.

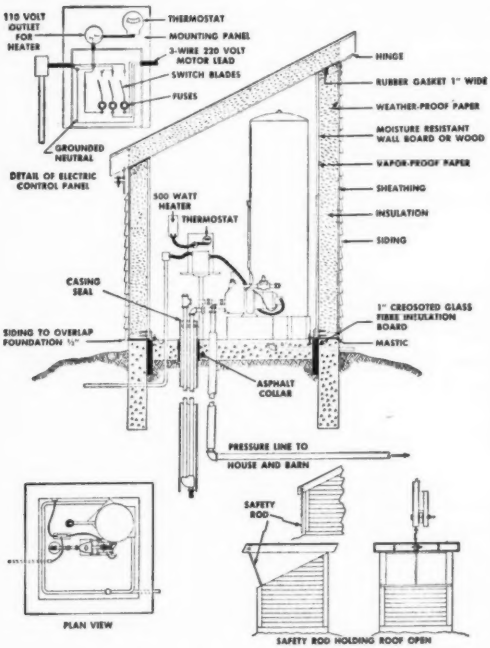
In an automatic water system, the pressure switch is usually set to turn the pump on when water pressure drops to 20 lbs. and turn it off when the pressure builds up to 40 lbs. Where more pressure is needed, settings can be for 30 and 50, or 40 and 60 lbs. These pressures are adequate to take care of modern-day requirements, and in many cases are higher than found in city water systems.

Pressure tanks are available in various sizes, from one to more than 500 gallons. Most common on farms are 42 and 82-gal. sizes. When the pressure switch setting is 20 and 40 lbs., about one-fifth of the tank capacity can be withdrawn at satisfactory pressure. This means that an 82-gal. tank would provide 15½ gals. of water before the pump must start and deliver water to the tank. A 42-gal. tank will deliver about 8 gals. before the pump starts. It stands to reason, therefore, that selecting a larger tank will mean less frequent starts and stops for

make a pump into a water system

ANSWER: A pump delivers the water from its source. A water system puts the water where you want it for productive use.

Accessories make a pump



CONSTRUCTION DETAILS OF INSULATED PUMPHOUSE

the pump, thus adding to the life of the pump and motor.

A pressure tank and its components can be purchased separately from the pump, or some manufacturers offer packaged pump-tank units. Standard pressure tanks are made of galvanized steel. Some tanks come with a special bonded coating, such as epoxy, to further prevent corrosive damage and assure longer life.

A gravity tank is sometimes used in place of a pressure tank. This is a storage tank located either on a hillside or a steel tower. The gravity system is ideal with a low-yielding well that will not take a pump large enough for peak load requirements. An electric float switch can be installed in a gravity tank to automatically start and stop the pump.

There are many other water system accessories and installation techniques that give added convenience to your water system or meet specific climate, well and installation requirements.

Electrical connections—A central pole installation is highly desirable since the power line runs directly from the power pole to the pump. Power lines which run to a pump from a building may be burned in a fire, and the pump could not supply water for fire fighting in that event. A separate switch and fuse box and overload protection also should be a must.

A lightning arrester should be considered. Overhead power lines are subject to extremely high voltage surges during electrical storms, even without being struck by lightning, so the installation of an arrester, with good grounding, can be excellent preventive insurance.

Piping—Three types of pipes are commonly used in farm water systems—galvanized, copper and plastic. Each has its own advantages under certain conditions. Use as few elbows as possible, since unnecessary elbows increase friction and result in pressure loss and decreased capacity. Using pipes of too small a diameter cuts down capacity and makes for a noisy pump. Long discharge lines also increase friction and lower pressure.

Installation Site—A water system may be installed in the well (submersible), above ground, in a pit, or in a basement or other standing enclosure. Pit installations are not permitted in some states. Wherever the installation, the water system should be protected from the elements.

For above-ground outdoor installations, a pump house should be provided. Where freezing is not a problem, an inexpensive pump house will protect the water system from rain, dirt and dust. Where freezing is a problem, an insulated pump house should be provided. Such a house, designed by University of Minnesota personnel, meets requirements of sanitary codes in all states. In this house, water temperature in the tank will help prevent freezing in moderate climates. If needed, supplementary heat can be supplied by special pump house heaters, heat lamps, or heating cable.

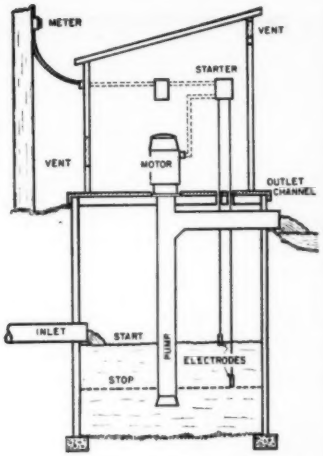
Well protection—Sanitary well seals are available for every type of pump, and are required in almost all installations. These seals prevent surface water from entering the well.

What specific accessories do **you** need for **your** farm water system? Make this decision with the advice of a reputable local pump dealer. Give him as much information as you can about your needs and wishes. He will work out the right combination of accessories to do the job at a minimum of expense.

How do you determine your farm's specific water needs? The next article gives you some tips on arriving at your water requirements. □□

Drainage Pump Keeps Problem Fields Dry

By M. L. PALMER and W. R. SCHNUG*



Fred DeWeese has solved a field drainage problem that has bothered him for more than 10 years. His solution—a pump drainage outlet to handle water drainage off 135 acres, 15 of them too wet to raise crops.

Fred farms in Miami County, in west central Ohio—an area of productive farm land devoted mainly to corn, hogs and cattle. But most of the land requires tile drainage for good crop production, and it is difficult to get open ditch outlets deep enough for tile.

DeWeese bought his farm in 1944. In 1953, DeWeese and several neighboring farmers petitioned the County Commissioners for a ditch improvement, but the petition failed. In 1954, with the aid of the Agricultural Extension and Soil Conservation Services, he planned and installed a tile drainage system using a pump drainage outlet. An open ditch 150 feet long was dug, with a concrete-block pumphouse and sump at the lower end. A 2000 gpm propeller-type pump with 5 hp electric motor was installed. The total installation cost, including 20,000 feet of tile laterals, was $5400. The installation also provides an outlet for a neighbor's 45 acres. The neighbor paid $1000 of the original cost, and pays ⅓ of operating costs.

DeWeese is very happy with his pump drainage outlet. "I could just as well have had those 15 wet acres producing top-yielding crops during the past years, if I had had this system in," he says. The cost of operation for the past three years has averaged only $70 per year, or 52¢ an acre. He doesn't run the pump during winter, as he finds March drainage to be early enough.

For field crops on mineral soils, a pump that delivers 20 gpm per acre is recommended to handle both surface and tile drainage. For tile drainage only, a pump capacity of 8 gpm per acre is usually adequate. Vegetable and muck soils require higher capacities. Propeller-type pumps that usually operate at heads of 10 feet or less give excellent performance. Electric power requirements are about 1 hp for each 12 acres of surface and tile drainage or 1 hp per 30 acres of tile drainage alone. Installation costs range from $10-$15 per acre drained. □ □

* *Extension Agricultural Engineers, Ohio State University.*

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Mark the Air In Your Home 'HANDLE WITH CARE'

Hood over electric cooking units contains single or double exhaust fans, vented to outside, to prevent steam, grease, smoke, cooking odors from reaching other parts of the home. Hood closes to line up with cabinets when not in use. Built-in light gives good illumination.

THE FARM HOME BY RUTH GAFFNEY

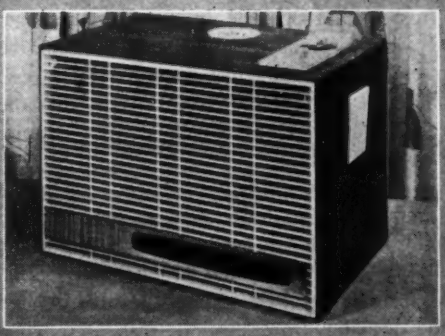
Really fresh air means healthful, more pleasant living

When you walk out of doors on a summer day after a thunder shower and breathe deeply of the fresh, cool, clean air, you say "that's wonderful!". Would you like to breathe that kind of air in your home all of the time? Of course, your answer must be 'yes.'

No part of our homes today is receiving more attention from engineers than treatment of the air it contains. You can take stale air out, bring filtered air in, cool it to just the right degree for you, heat it the same way. You can 'purify' it in a way to give that fresh-after-a-summer-storm atmosphere.

Turn the page to learn more about conditioned air.

Portable air conditioner cools living room during the day, bedroom at night. Just roll up to window, slide into opening, adjust side panels, lower window, plug in, and you're in business.



Evaporative cooler will ventilate, cool, humidify, filter and circulate air for maximum comfort. This model turns on and off automatically as needed.

Looks like a neat radio? No, it's a neat air purifier to filter smoke, odors, and dust out of the air. Ultra-violet lamp, two filters, activated charcoal and an efficient blower do the work.

. . . really fresh air means healthy, more pleasant living

Start with the kitchen

This is the room in which many unwanted odors, other undesirable airborne properties, originate. Even pleasant cooking smells repel us when they have lingered and become stale. Grease and smoke eventually accumulate on walls and ceilings, settle on furnishings to cause expensive cleaning bills and an undesirable mustiness which is hard to eradicate. Most effective way to correct this problem is to remove smoke, grease, steam and odors right where they originate—at the kitchen range. You have a choice of methods:

Built-in range hoods

This is perhaps the oldest—most decorative—and one of the best ways to keep the kitchen air fresh. It is possible to purchase compact units which are easy to install and inexpensive to operate. There are two general types: those which must be vented to the outside, and the so-called ductless type which do not require any outside venting.

The ductless model is particularly good where it is impossible—or too expensive—to make an opening in an outside wall. It has a fan which draws the air over a filter to eliminate odors, smoke and grease. Of course, the heat created in the cooking process is not dispensed when you have this type of hood.

Both types of exhaust hoods come in various widths, usually from 30″ to 48″ wide. They are also available in a number of finishes to match color schemes and types of cabinets. The fan and filter should be kept clean at all times for most efficient operation.

Exhaust fans

Fans which draw air out of the room may be installed in ceiling or wall over range and vented to the outside. It is important to have good cross ventilation so that air will pass over cooking area, then into exhaust fan. Be sure to buy a fan with enough capacity to clear the air in your particular kitchen. Once in use, fan and grill that covers it should be kept free of grease and dirt in order for it to do a good job.

An air purifier is good for every room in the house

This is the newest way to treat the air in your home. It has nothing to do with the heating or cooling but does just what the name implies—makes the air fresher, more pleasant, healthier. It is a compact appliance, easily portable, and costs very little to operate.

You'll immediately notice something "different" when you walk into a room where an air purifier has been operating for some time. You will experience a sense of well-being, something resembling the way you feel when you breathe the clean, clear air after an electrical storm in the summertime.

A blower keeps air moving over filters which clean the air of smoke, dust, and odors, and circulates the air without creating a draft in the room. People who suffer from airborne allergies are considerably benefited by this clean, filtered air. Less dust will accumulate, therefore, you'll have less house cleaning.

Air purifiers come in a number of different sizes to handle the air in small or large rooms. Some very small ones are available for bathrooms or small bedrooms. Larger sizes take care of living and dining areas or large kitchens. Be sure to get a size to do the job you require.

Air conditioners now will not only cool but reverse themselves (with you at the controls) and furnish filtered, warm air when needed. A great boon in temperate climates and for cool nights when furnace has been turned off, or for hard-to-heat rooms.

Evaporative coolers are the perfect answer for cooling the home in hot, dry climates. They also filter the air and a fan blows this air over a moistened area. When air strikes you it cools and refreshes. These coolers should be used in a well-ventilated room, preferably near a window.

PART VII By A. V. KREWATCH*

When TV set is placed against a dark-colored wall, a bulb behind the set brightens the area around the screen, making viewing more comfortable. (at left)

Correct placement of lamps not only takes strain off eyes during TV viewing, but also allows person who wants to read to do so without disturbing others. (top right)

Wall lighting creates a delightful environment for watching television, listening to hi-fi music, or just for conversation. (at right)

A guide to lighting your home...

Give Your TV Eyes a Break

Television viewing can be enjoyable, and with reduced eyestrain, if you have proper lighting.

You may already know that a television screen is very much brighter than a movie screen. You can then reason that you need much more light in your home than in a movie theater. Why? Suppose your room was just as dark as a movie theater. The pupils of the eyes would try to adjust in size (open) for the darkness of the room and (close) for the brightness of the TV screen. Obviously they can't do both. Now turn on the lamps in the room until there is little difference between the TV screen brightness and the general amount of light in the room. You will have relieved eyestrain, but you still may have to do some rearranging of lamps.

Television lighting arrangements can be simple. If you already have good lighting from well-designed portable lamps, an arrangement check may be all that is needed. With the lighting turned on and the TV set off, sit in the various viewing positions. If you can see a lighted lamp or fixture reflected in the darkened screen, that light will be annoying when the TV set is on. Rearrange the lamp or the viewing position.

If some of the annoying reflections are still there, try opaque or dense fabric lamp shades to reduce the reflection. For a troublesome position, you may need to substitute a three-light lamp for a single-light lamp and use the low intensity light when viewing television.

Ten Points to Check:

1. Arrange to have light distributed fairly evenly over the room.
2. Place lamps so that they are not reflected in the screen.
3. Keep lamps far enough from TV set so that light from under the shade will not fall on the screen.
4. Avoid lamp shades brighter than the TV screen.
5. Remember that the most important lighting is in that area surrounding the TV set.
6. Sit where you can see the picture best, but not too close, usually 8 to 10 feet from the screen.
7. Keep children at least 4 to 6 feet from the screen. They are apt to sit too close.
8. Look away from the screen at intervals. One eye doctor says, "Practice the pause that refreshes."
9. Have TV sets checked periodically for flickering or "dull" picture. Don't put eyes to extra work.
10. Provide for the person who wants to read or study. This lamp can be on the brightest level without disturbing viewing if placed carefully.

Remember, eye-comfort conditions are a must for watching television, just as good lighting is needed for sewing, reading or studying.

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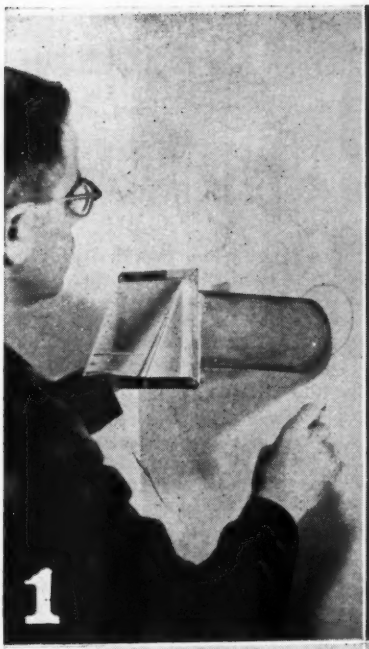
* *Member "Four-State Lighting Committee" consisting of representation from Agric. Extension Services of Univ. of Md., Penna. State Univ., Va. Polytechnic Inst., West Va. Univ., and Resid. Dept. of Potomac Edison Co.*

How to vent a Clothes Dryer

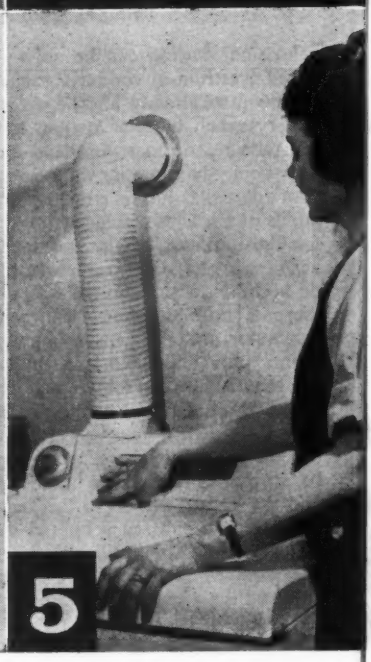
Do you have plans for installing a new electric clothes dryer in the near future? It's good, money-saving news that you can do the venting yourself with the aid of a handy kit which contains all the necessary materials.

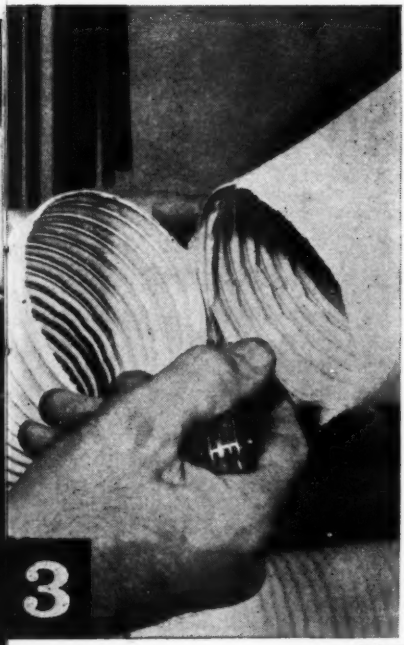
Outside venting is the most satisfactory because lint and moisture are disposed of immediately. You can make an opening through the wall, as illustrated here, or parts are available for installing the vent in a window.



SOME CLOTHES DRYERS, known as condenser types, do not require venting. They must be connected to the plumbing, however. A steady stream of cold water during the drying cycle is used to condense the steam and carry it, together with most of the lint, down the drain.

If water is precious in your area, be sure to learn the amount of water required before making a decision to purchase this type of clothes dryer. Some use as much as 40 gallons of water for one load of clothes.





1. Measure for cutting through exterior wall, being careful to avoid studding. Cut ⅛" outside pencil mark to insure proper fit.

2. Slip vent pipe through wall and secure to outside. Hood on pipe contains automatic damper to keep out cold air and insects.

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3. Measure and cut flexible tubing. Stretch tight enough to insure smooth air flow, but save room for moving machine for servicing.

4. Slip tubing over pipe in wall and connect to outlet provided on clothes dryer. Out-of-sight installation also can be made.

5. Job is quickly done and you'll never have moisture or line problems in your utility room, kitchen or basement.

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HOW TO COOK MEATS

tender-moist-succulent

When baked in a wrapping of aluminum foil, that all-year-round favorite—ham—never tasted so good. The wrap helps to keep ham moist and tender, retaining all its wonderful flavor. This is true for all types, whether the modern-cure fully cooked, ready-to-eat type, or the country-cured hams which must be cooked before eating.

Some modern hams are rather bland and need the extra flavor provided by seasonings. A sauce can be used inside the foil wrapping during baking and provides an excellent glaze during browning.

HERE'S our favorite way of preparing ham: place whole or half ham on large sheet of 18" wide heavy duty aluminum foil. Brush with the following sauce:

combine 1 can frozen orange concentrate (thawed, but not diluted) with 1 cup pineapple, apple or other canned fruit juice. Add ¼ cup brown sugar, 1 teaspoon dry mustard and 1 teaspoon Worcestershire sauce (use half this amount for half ham).

Work sauce in well. Pad bone ends with folded pieces of foil. Bring long ends of foil up over ham and overlap them three inches. Close open ends and turn foil up so juices will not escape. Do not press foil tightly against ham. Place wrapped ham in shallow pan in 400° F. oven and cook 14 to 18 minutes per pound.

Glazing and decorating: Remove from oven, open and turn back foil. Spoon out fat and liquid. Remove rind (if country-cured), score fat in diamond or other pretty pattern, stud with cloves, and arrange orange slices on top. Brush with sauce and return to oven for 15 minutes or more to brown. Spoon sauce over ham once or twice while browning and sprinkle with white or brown sugar. Serve remaining sauce with ham.

THIS METHOD of cooking is actually a new and better way of braising or pot roasting. This means that inexpensive and less tender cuts of beef are made tender and delicious when cooked in foil. Your electric range is the ideal oven for this type of cooking because of the steady and accurate heat it maintains.

The easiest-made pot roast we know of—and the best—is prepared in the following way:

Preheat oven to 300° F.

Place 3-pound pot roast in center of 18" wide heavy duty aluminum foil. Sprinkle contents of one package onion soup mix over top. Close foil securely, folding ends up so juices will not escape. Place in oven in shallow baking pan and cook 2½ to 3 hours. When done, remove roast to hot platter and garnish with vegetables. You'll have a surprising amount of delicious gravy which should be served separately.

see the
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• Noiseless
• Greater Capacity
• More Pressure
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9494—Square-necked dress has skirt of unpressed pleats, jacket for cover. Printed Pattern in Misses' Sizes 10-18. Size 16 outfit takes 5¾ yards 35-inch fabric. 35¢

9023—To smartly yoked bodice, add slim skirt or flared. Printed Pattern in Half Sizes 14½-24½. Size 16½ with slim skirt: 3¼ yards 35-inch fabric. 35¢

4553—Trio of pretty blouses to whip up in cotton prints or silks. Printed Pattern in Misses Sizes 12-20. See pattern for yardages. 35¢

9330—Open-collared casual to sew with six-gore skirt or slim. Printed Pattern in Half Sizes 14½-24½. Size 16½ with full skirt: 3¾ yards 35-inch fabric. 35¢

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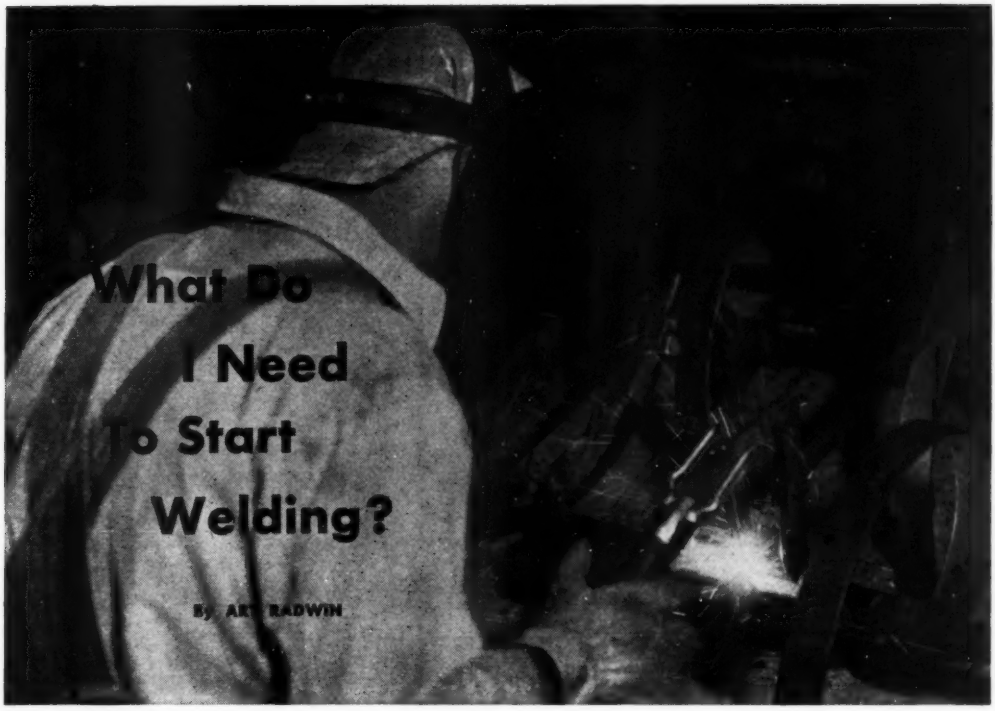


What Do I Need To Start Welding?

By ART RADWIN

Choosing the type of arc welder for farm use is usually not too difficult. A standard 230-volt, low-input, 180-ampere-output AC welder is the usual recommendation for farm use, and these units are available from a number of manufacturers. Many are labeled as "farm welders."

These units are simply transformers, which step down voltage and step up amperage. A variable control allows the operator to change the voltage-amperage ratio according to the work to be done. Some have a switch on them which can be adjusted when power line voltage drops, such as might occur at milking time. This allows full welding output, even with low input. Be sure, however, that the machine you choose is approved by your power supplier before buying it.

Once you have your welder, electrodes are the next important item to consider. These electrodes, which are metal wires or rods covered with a clay-like chemical coating, sustain the welding arc and provide filler metal for the joint. They come in many different sizes, metals, and coatings. Generally, the thicker the metal to be welded, the larger the diameter of electrode needed.

Always use the correct electrode type, size, metal and coating for the work to be done. Cast-iron welding requires electrodes of different metal than, say, stainless steel work. And make sure that you get AC electrodes—DC electrodes are either negative or positive polarity, and electrodes used with an AC welder must work efficiently with both polarities.

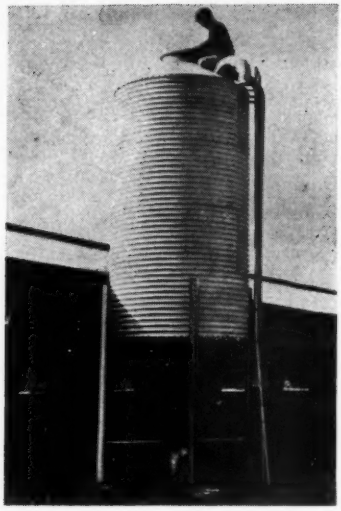
Welding cables, which carry current from the welder to the arc, should be flexible, yet durable, rubber-covered copper.

The electrode holder should be light, well-balanced and easy to handle. It should remain fairly cool, and the spring should be strong enough to grip the electrode firmly.

The ground clamp is important in that it must make a good electrical connection for the ground cable. Either an ordinary "C" clamp in good condition or a large, strong alligator-type clip may be used.

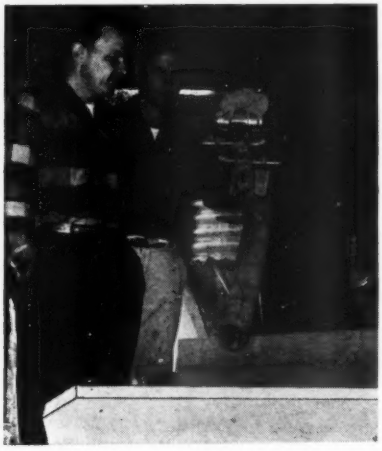
Since the welding arc gives off rays harmful to skin and eyes, protective face shield and gloves are very important to safety. The face shield or helmet should be light, sturdy, and have an approved lens that will filter out all harmful rays. Gloves should always be worn to protect hands from metal spatter and heat.

Once you have this equipment, plus a wire brush and chipping hammer for finishing off rough welds, you are ready to practice welding. It's always a good idea though, to read up thoroughly on the technique of welding before you start.



Cap on bulk bin is replaced by Crawford. Auger leading from bottom of self-unloading bin fills feeder hopper inside poultry house.

Mechanical poultry feeder's operation is explained to visitor by Crawford, right. Auger carries feed to feeder bin from large bulk bin outside.



With mechanical poultry feeding...

Twice the Birds Take Half the Time

Growing broilers is a business into which Floyd Crawford has put a lot of planning and hard work. These have been ingredients of success for this ex-schoolteacher who turned to farming at Lake City, Fla.

Crawford keeps a close watch on his costs. For example, when his capacity had reached 38,000 broilers, he was feeding only 26,000 mechanically. His systematic move toward mechanization had not yet been completed.

Here is the difference that mechanical feeding made:

In man-hours, he was able to look after 26,000 mechanically-fed birds in one-half the time required by 12,000 hand-fed broilers. This is a vivid picture of how sharply mechanical feeders cut the labor required for broiler production.

From bulk bins to chickens, Crawford's feed is conveyed mechanically. He raises the troughs every two weeks as the birds grow, keeping the troughs at a level where there is minimum waste of feed. This management is reflected in his conversion ratio—1 lb. of meat for each 2.22 lbs. of feed.

Another of his cash crops is linked directly to the broiler operation. Litter from the houses applied to coastal bermuda pastures has resulted in bumper crops of high-quality hay for which Crawford finds a ready market. Mechanical feeders help him gain time to harvest the hay crop and develop other farm enterprises.

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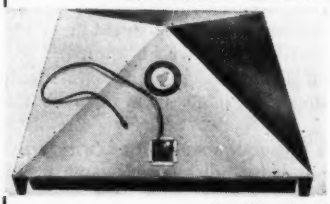

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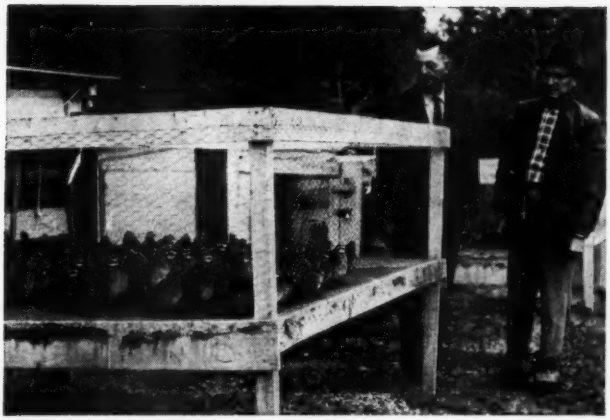

Growing pens at Stanford farm have sun porches and sheltered area with 400-watt heating element. Pens hold 300 birds each.

Alabaman Raises Quail Instead of Shooting 'Em

Commercial quail production is something new to Alabama, and Wiley Stanford, Jr., of Pine Apple, believes he may be the first to attempt it. He began his operation about a year ago with 100 pairs of northern bobwhites. Now his flock ranges up to 6000 birds.

Life span for the market birds is 16 weeks. At this age they attain full size—about 8 ounces. Only two ounces of this is lost in dressing. Markets for Stanford's packaged and frozen birds are specialty eating establishments and a supermarket. He also sells live birds, specially raised in larger pens for strong wings, to shooting preserves and professional bird-dog raisers.

Each pair of quail is penned separately in a 1 x 1 x 2-ft. enclosure. To get year-round egg production, Stanford uses electric lighting with a time control to establish day-length. When hens reach egg-laying age, he starts with a 14-hour day. This is extended 15 minutes each two weeks until a 17-hour light-day is reached.

Eggs are gathered several times daily and removed to an egg storage room to retain hatchability. Every eight days, Stanford puts 400 eggs into the 1600-egg electric incubator. Five days before they are scheduled to hatch, the eggs are removed to a hatcher.

Baby quail are kept under 500-watt electric brooders for three weeks. To prevent cannibalism, they are debeaked when one day old and again at six weeks. The second three weeks are spent in battery-type brooders, from which they go into 8 x 10-ft. growing pens. Stanford has 12 pens, each equipped with automatic watering and a 400-watt electric brooding area.

Stanford has equipment for dressing, packaging and quick-freezing the birds on the farm. An electric scalder and picker speed dressing.

Growing quail, he says, isn't easy. Before he began, he visited some commercial and research quail farms. He found that strict adherence to good management practices is essential. □□

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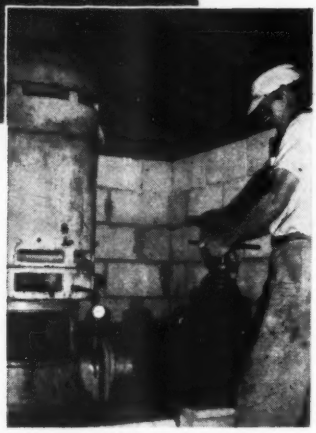
Sprinkler irrigation system used at McLeod Farms directs water beneath trees to avoid washing off sprays.

Irrigate to "Size Up" Peaches

Peach growers last summer felt the pinch of fierce competition—a competition intensified by a lingering winter that delayed crops in the deep South. Out of it came warnings from some quarters that only fruit 2 inches and up would find a profitable market. And peach trees, like other crops, require moisture at critical growth periods to produce this kind of fruit.

"It's true. We need peaches 2 inches and up all of the time," observes Campbell McLeod. "We have to have a large peach, and irrigation is the insurance that we will get it."

He is talking about irrigation in the 400 acres of orchards at C. S. McLeod Farms, Inc., McBee, South Carolina. "We irrigate nearly 100 acres," he explains, "and have been doing it for 12 years."



One water source for peach irrigation is 300-ft. well, from which 60 hp electric pump delivers 700 gallons per minute.

"It seems like there is a drought every year. We irrigated just one week in 1959, much more last year. Our intention is that, after the fruit is set, the trees will not go longer than 2 weeks without the ground being wet thoroughly. Enough water is put down to make the moisture meet up to 1½ inches, I'd say."

The sprinkler nozzles used by McLeod direct the water underneath the trees so that insecticides and other spray materials are not washed off. One of his water sources is a 300-ft. well, from which a 60 hp electric pump delivers 700 gallons per minute. □□

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Questions and Answers

Sprinklers for Hogs

Q. *Will use of sprinklers have any effect on the feed conversion rate of hogs during hot weather?*

D. A. I.—Virginia

A. A North Carolina State College experiment conducted in June, July, and August showed that sprinkled hogs needed 377 pounds of feed per hundred pounds of gain as compared to 393 pounds for non-sprinkled hogs. Sprinklers were used to spray a fine mist over hogs from 9 a. m. until 6 p. m. daily.

Long Life Light Bulbs

Q. *Someplace during the last year I heard of a new light bulb that has a longer life than standard bulbs? Can you advise me about these?*

G. W. C.—Ohio

A. The "long life" light bulbs about which you ask are available, usually at a premium price. These bulbs are designed to give longer life by reducing the light output per watt as compared to standard bulbs. Since you buy light bulbs to give maximum light per watt, we recommend conventional light bulbs for normal lighting applications unless changing of the bulb is difficult.

Emptying Soft-Shelled Corn

Q. *We use an auger to empty soft-shelled corn from our storage unit. Sometimes the corn doesn't feed down properly. Is there any way to overcome or prevent this?*

A. B.—Pa.

A. Some folks tell us that soft shelled corn will empty out of storage much easier if a truckload or so is run out at the time of filling. It seems this orientates the kernels for freer flow and they don't wedge against each other quite as tightly. The load emptied out can just be refilled into the top.

Coin Changer for Egg Vending Machine

Q. *Last year you had an article on a successful automatic egg vending machine installation. One of the biggest problems we have with these machines is the pricing system and availability of the right change. How has your subject solved this?*

W. A. A.—Connecticut

A. As to pricing, it was found on this installation that bargain prices on eggs did not sell as well as regular premium prices, when the exact same grade and size eggs were sold side-by-side in the two vending machines. A mechanical coin changemaker installed beside the vending machines took care of odd change problems. This changemaker is the type often used in municipal parking lots with coin meters.

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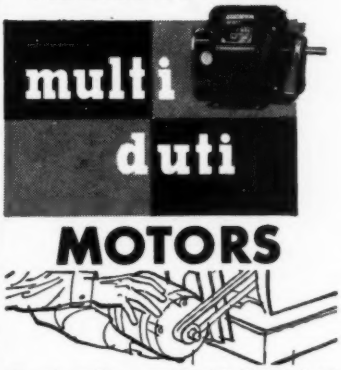

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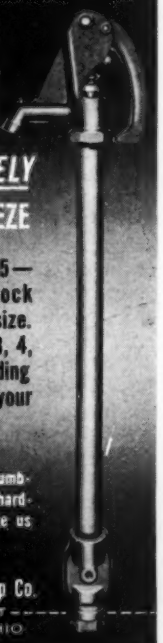

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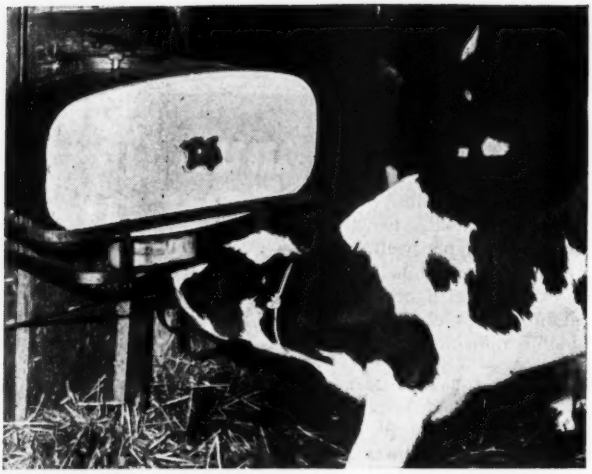

Shank's calf feeder is mounted on post in his barn, where he puts 12 to 13 calves at a time on it.

"Nearest thing to a nurse cow . . ."

Electronic Calf Feeder

The world of electronics has produced a new "mother" for calves. It is a feeder that blends water with a dry milk-replacer food, holds it at a temperature of 100°, and dispenses it through a standard calf pail nipple.

Food is available around the clock for hungry calves, so that they can eat whenever they choose, but a time-delay feature keeps them from over-eating at one meal. Further, the formula can be enriched or weakened by changing the ratio of milk-replacer powder to water.

One of these automatic calf feeders is being used by Charles F. Shank, a Timberville, Virginia dairyman. The installation cost him about $325 and he is using it to care for 12 to 13 calves at one time. One unit, he says, will handle the offspring from a 40 to 50-cow herd.

The feeder connects to the water system and plugs into a 115-volt receptacle. Shank has it mounted on a column in his barn so that the nipple is in natural feeding position. A hopper holds up to 25 lbs. of milk-replacer powder, and a vibrator keeps it flowing.

Shank says his Holstein calves have grown off better with this feeding system than with any other arrangement he has used. "It's much nearer the nurse cow," he explains. Calves gain faster.

He puts the calves on the feeder when they are three days old. Holding the calf to the feeder twice on the first day and once on the second usually is all the training that is needed. In addition to the feeder, Shank keeps a calf ration before the animals at all times. They begin nibbling at it when they are a week old.

In this dairy operation, the electronic feeder is used until calves are 6 to 8 weeks old. Another advantage it offers is that medications are easily added to the solution. □□

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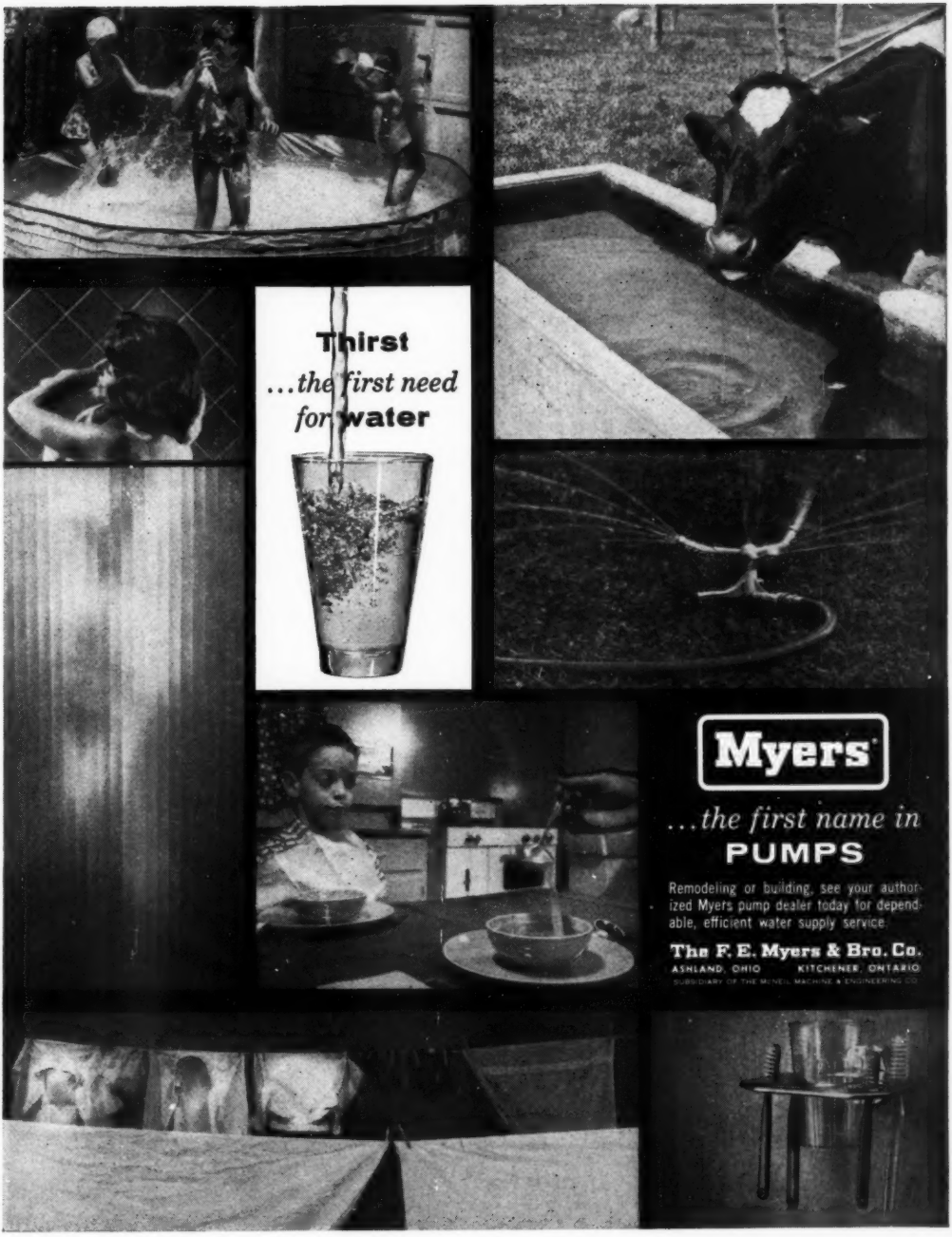
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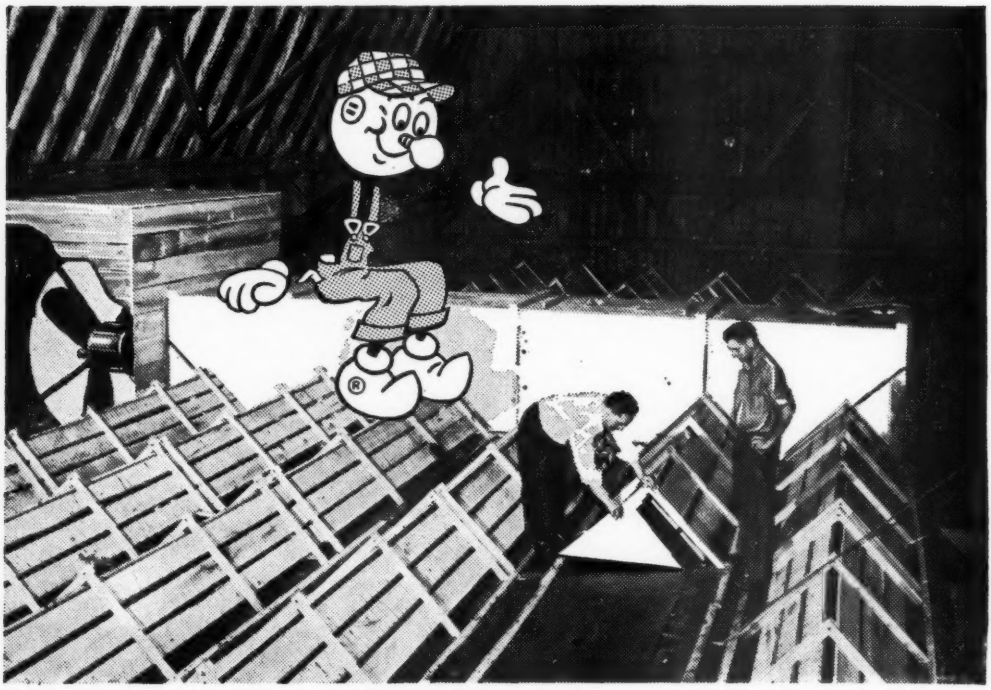

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